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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/601,957	06/23/2003	Mu-Jen Lai	252208-1030	8877
24504	7590	02/02/2004	EXAMINER	
THOMAS, KAYDEN, HORSTEMEYER & RISLEY, LLP			PRENTY, MARK V	
100 GALLERIA PARKWAY, NW			ART UNIT	
STE 1750			PAPER NUMBER	
ATLANTA, GA 30339-5948			2822	

DATE MAILED: 02/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/601,957

Applicant(s)

LAI ET AL.

Examiner

MARK V PRENTY

Art Unit

2822

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.135(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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This Office Action is in response to the papers filed June 23, 2003.

The disclosure is objected to because of the following informalities: in the specification at page 7, line 3, "to substantially equal" should read "substantially equals"; in the specification at page 7, lines 7-8, "the first lattice constant C<sub>1</sub>" should read "the second lattice constant C<sub>2</sub>"; in the specification at page 7, line 13, "to substantially equal" should read "substantially equals"; in the specification at page 7, lines 14-15, "the first lattice constant C<sub>1</sub>" should read "the second lattice constant C<sub>2</sub>"; in the specification at page 7, lines 18-19, "the second lattice constant C<sub>2</sub>" should read "the third lattice constant C<sub>3</sub>." Appropriate correction is required.

Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Independent claim 1 is incorrect in reciting "a GaN base epitaxial layer" (line 17). Such should read "a GaN-based epitaxial layer" (note independent claims 6-9).

Independent claim 1 is indefinite because "said third lattice" (lines 18-19) lacks antecedent basis. Such should read "said third lattice constant."

Claims 2-5 depend on independent claim 1 and are thus similarly indefinite.

Dependent claims 3-5 are further indefinite because "The method as claimed in claim 1" lacks antecedent basis. Such should apparently read "The device as claimed in claim 1" (note claim 2).

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Dependent claim 3 is also incorrect in reciting: "said first buffer multilayer is represented by general formula  $B_xGa_{1-x}P$  (where  $x=1$ )," because the buffer layer is not a multilayer with a changing lattice constant if its composition remains constant, as is the case if  $x=1$  throughout (note the specification at page 6, lines 15-19).

Independent claims 6, 7 and 9 are indefinite because  $x$  and  $y$  are not defined (note that claims 2-5, which depend on independent claim 1, define their  $x$  and  $y$ ).

Independent claim 8 is indefinite because  $x$ ,  $y$  and  $z$  are not defined (note that claim 5, which depends on independent claim 1, defines its  $x$ ,  $y$  and  $z$ ).

Claims 1-9 would be allowable over the prior art of record if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

The prior art of record does not disclose or suggest the allowable light-emitting devices with reduced lattice mismatch taken as a whole, including the various lattice-matched buffer layers.

Tischler et al. (United States Patent 5,679,152) and Chen et al. (United States Patent 6,630,695) are relevant to this application.

Registered practitioners can telephone the examiner at (571) 272-1843. Any voicemail message left for the examiner must include the name and registration number of the registered practitioner calling, and the Application/Control (Serial) Number. Technology Center 2800's general telephone number is (571) 272-2800.

*Mark V. Prenty*  
Mark V. Prenty  
Primary Examiner